

Salahaddin University-Erbil
College of Engineering
Department of Architectural Engineering
First Year Students
2nd Semester



Mathematics I

Integration

Indefinite Integration and Substitution Rule (Ch.4)

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Integration by substitution

$$\int \cos(7\theta + 5) d\theta$$

$$\int x^2 \sin(x^3) dx$$

$$\int \frac{1}{\cos^2 2x} dx$$

$$\int \frac{2z dz}{\sqrt[3]{z^2 + 1}}$$

The integrals of \sin^2x and \cos^2x

- Examples

$$\int \sin^2 x \, dx$$

$$\int \cos^2 x \, dx$$

Activity

- Evaluate

$$1. \int (x^2 + 2x - 3)^2 (x + 1) dx$$

$$2. \int \frac{1}{t^2} \cos \left(\frac{1}{t} - 1 \right) dt$$